

Fixed Air Monitoring Stations
PR-HQ-04-11505
Questions and Answers 10-25
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Q10. C.10.5 Minimum Dimensions and Weight - The 150 pound weight limit of the enclosure with all the components is too restrictive for the particular fixed station being requested in this request for bid. The fact that the requested unit is a fixed station and not a deployable unit does not require a very low weight. A more reasonable weight for the system being requested would be in the 300-325 pound range.

A10. The weight and dimension limits are derived from typical restrictions associated with mounting a monitoring station on the roof of a building, which is likely for many of the cities where the monitoring stations will be located. Typical access is through a 32" wide door, sometimes with reduced heights of 48". The Uniform Building Code specifies roof design loading for most types of buildings that would be likely candidates for monitor installation of 25 pounds per square foot. The anticipated approach for rooftop mounting would utilize a 4' by 4' platform (such as a steel pallet) weighing approximately 100 pounds to distribute the weight and provide stability and anchoring. Adding 150 pounds for an operator, that leaves 150 pounds for the monitoring station, of the allowable 400 pounds distributed over 16 square feet.

Q11. D.2 Calibration Kit - Remote User Interface and Control Software Calibration of the air flow measuring system, ambient air temperature and barometric pressure instruments remotely via Remote Interface and Control System may be limited to the type of telecommunications option that are installed at a particular site.

Furthermore, the additional expense in designing a system for remote calibration of the air flow, air temperature and barometric pressure sensors is not warranted relative to the cost of performing the calibrations onsite by the local operator who can be remotely connected to the NAREL technical center via cellular telephone at the time he or she performs a local calibration utilizing simple to use procedures and equipment contained in the calibration kit.

A11. Capability for remote calibration is essential for minimizing the ongoing costs of operating the equipment, and specifically was intended to eliminate the need for a service technician to travel to the installed location for routine calibrations, or the need for any special qualification or training for the station operators. EPA also desires that calibration (defined as modifying the factors used to translate instrument raw output such as volts or milliamps to the desired engineering units) be a deliberate act performed by a qualified service technician after reviewing the calibration data, and not done automatically. The approach proposed by an offerer for meeting this requirement does not need to be complicated. For example, the calibration data tables could be generated and stored locally at the monitoring station, then transmitted to the service technician's location, where the technician would review the data, modify a calibration data table file, then transmit/install the calibration data file via the remote interface and control software.

EPA recognizes the baud rate limitations of current wireless telecommunications technologies. Of the four telecommunications capabilities specified, it is anticipated that one wireless (cell phone or satellite) and one landline (telephone or network interface) will be used at any given location. The landline is intended to be the default and primary means of communication, and calibrations will not be performed when landline communications are unavailable.

Q12. 4.10.3 Heating and Cooling - The 15 amps limitation in C.1.b of the general requirements applicable to the sum total of all components in the system is too restrictive if a heating or cooling component is required for certain stations.

The EPA should allow for a separate 20 amp circuit for heating or cooling component should it be required at any specific location. For new service, an electric utility will provide no less than 60 amp service.

The cost of providing a separate 20 amp circuit in the requested power distribution enclosure that contains the electrical service connection to the air monitoring system will be minimal compared to the cost of not being able to provide heating or cooling where it is needed.

A12. Heating or cooling is not required. The maximum current specification is important to minimize installation costs and provide maximum flexibility for selecting new installation locations. In addition to new locations, the monitoring stations are also intended to replace old equipment at a large number of existing locations where the presently available power supply circuit is limited to 15 amps.

Q13. H.1 Option to Extend the Effective Period of Contract - Will the EPA clarify the minimum and maximum estimated quantities for option periods I, II, III and IV as listed in Section B.3?

A13. EPA intends to issue an order for 60 units at the time of contract award. As funding permits, a total of 120 additional units will be ordered in FY2005 through 2009.

Q14. Will the EPA confirm that the quantities to be delivered in option periods I, II, III and IV will not exceed 5 units per month in any given month?

A14. Yes.

Q15. Will the EPA confirm or clarify that the quantities to be ordered under Option Periods I, II, III and IV will be in separate calendar or EPA fiscal accounting years?

A15. See A13.

Q16. What standard inflation indices will the EPA accept for pricing of deliveries of units in future years beyond the base period delivery?

A16. The Offeror should propose prices for units in Option Periods I-IV in accordance with

their standard business practice.

Q17. C.1.3 - Is it a requirement to use only the development environments listed under Integrated Development Environments (IDE) in the Technical Reference Model (TRM) Version 1.1?

A17. As it pertains to development environments, the Technical Reference Model (TRM) applies only to web-based or web-enabled technologies. The referenced requirements are applicable only to the extent that web-based or web-enabled technologies are proposed by the offerer.

Q18. C.1.3 - Is it a requirement to use only the operating systems listed under Supporting Platforms? Or may we use something similar? For example, FreeBSD has the same roots as Linux and is an open source operating system similar to Linux.

A18. The Federal TRM provides more flexibility to offerers than the pre-TRM EPA interim standards, which included only the various versions of Microsoft Windows. The requirement to use only the TRM-listed operating systems applies to the Remote User Interface and Control Software (Section D.2 and C.6.2), to the CD-ROM containing the documentation (Section C.13.c), and if applicable to other components or functions implemented with a computer. For example, although not required, the training video required by Section D.3 could be produced on CD-ROM. If the offerer were to take that approach, then the CD-ROM would have to be readable by one of the TRM-listed operating systems. The Local Interface and Control (Section C.6.1), Data Processing Unit (Section C.7), and Data Logger (Section C.8) are considered to be embedded applications, and as such there are no operating system limitations.

Q19. C.5 (h) - Why would the data processing component need to be rebooted?

A19. Our experience has been that there is no such thing as a completely stable operating environment. It is our preference to periodically re-initialize the system in a controlled and deliberate manner after data acquisition is complete.

Q20. C.7 and other locations - The Statement of Work mentions an "interval of radiation instrument data acquisition". Is this a separate value from the running time of the air sampler? For example, the air sampler is set for a 7-day sample period, is the intent to have the gamma and beta detectors run for shorter intervals during the 7-day sampler period? Say every 4 hours or some other user selectable interval? Is it desired to have the spectrum saved, CLEARED and then restarted after the interval of radiation instrument data acquisition has been reached? Or, is it desired to have the spectrum saved and then acquisition continued (adding to existing spectrum) at the end of each interval?

A20. It is correct that the radiation instrument data acquisition period is intended to be independent of and shorter than the air sampling period. One possible operational setup would be to program the air sampler to operate for a week, but manually stop it and change the

filter twice a week. The detectors would be programmed for a one hour acquisition time. It is desired to clear the spectrum at the end of each interval.

There is also a third timing interval that is independent of the other two, the interval for data transmission. It would not be more frequent than the radiation instrument data acquisition.

Q21. Would it be possible to have a more detailed description of the desired operation of the unit? Could there be some possible sampling scenarios provided describing the interaction of the interval of radiation instrument data acquisition, the weather station data and the air sampler? Doesn't have to be exact, just to provide a better picture of what is desired.

A21. See A22 above. The intent is that one data record be stored for each radiation instrument data acquisition interval that includes all of the data listed in Section C.8.2. Weather station data is intended to be for the same interval as the radiation instrument data acquisition. Air sampler data is for the longer interval that the sampler operates. See also sections C.5.h and C.5.i - the beginning of a new radiation instrument data acquisition interval will always coincide with the beginning of an air sampling interval, and likewise the end of an air sampling interval will always coincide with the end of whatever radiation instrument data acquisition interval that was in progress when the sampler stops.

Q22. What size is the concrete pad that will be supplied by EPA?

A22. Concrete pads will only be used for grade-level installations. The size will be conformed to the dimensions of the monitoring stations.

Q23. C.10.1 - Can you supply the wind velocities that the enclosure must withstand along with the pressures cited?

A23. The wind velocity that would correspond to the pressures cited will vary depending on the surface area presented to the wind and other factors, but should not be greater than 130 mph. Tables are readily available in the literature to make such determinations without requiring complex engineering calculations or wind tunnel testing.

This requirement was specified to address concerns with the monitoring station becoming a potential missile hazard during high winds. It is not a requirement that the monitoring station remain fully functional during these conditions (otherwise that would have been specified in Section C.1.1), rather that components and/or the entire monitoring station will not become airborne.

Q24. C.11 - Does the external mast for the weather station and antenna have to be solely supported by the enclosure or may it rest on the pad and be supported by the enclosure?

A24. The weight of the external mast does not have to be supported by the monitoring station, but it should provide lateral support. The intent is that the entire monitoring station, including

the external mast, should fit on a 4' by 4' mounting platform or concrete pad.

Q25. C.2.2.c.- This section and other sections, such as C.2.2 and C.7, requires the correction of volumetric (actual) flow at the flow sensor utilizing the ambient temperature and barometric pressure sensor measurements whose location may be on the mast or other location external to the system enclosure.

The specifications require to design the system for up to 50-55 mm Hg pressure drop (C.2.1 b and C.2.2.b). This 50-55mm Hg pressure drop precludes the location of the absolute pressure sensor to be anywhere except very close to the volumetric flow sensor. Failure to utilize an absolute pressure sensor very close the volumetric flow sensor will result in a large error when correcting flowrate to STP. The greater the pressure drop across the filter, the greater the error.

The absolute pressure sensor for measuring ambient barometric pressure can not be utilized for correcting volumetric flow to STP where the volumetric flow sensor is in the system downstream of the 4"D filter paper as required in C.2.2.c..

Additionally, the preferred location for the temperature sensor utilized to correct volumetric flow to STP is very near the volumetric flow sensor. The ambient temperature sensor outside the air flow path will vary from the temperature of the air as it passes through the volumetric flow sensor chamber due to compression and expansion of the air as it passes through most volumetric air flow sensors.

The temperature effect is much less than the pressure effect, but good science dictates that accurate correction of volumetric flow rate corrected to STP requires both the temperature and absolute pressure sensor utilized to correct to STP to be in the immediate vicinity of the volumetric (actual) flow sensor. The specifications should not require the use of the ambient temperature and ambient barometric pressure sensor to be utilized to correct volumetric flow to STP. It will be inappropriate in many cases.

A25. The ambient air temperature and barometric pressure are desired data from a meteorological perspective, and were believed to also be appropriate for making the volumetric flow corrections. EPA acknowledges that there are multiple acceptable approaches for measuring air flow. If the offerer believes that ambient sensors are inappropriate for volumetric flow correction based on the proposed approach to measuring flow, then separate sensors should be used for that purpose. If this is done, then the data stored and transmitted should be from the ambient sensors, not from the sensors used for flow correction. Any local or remote data displays should unambiguously identify whether it is ambient or flow control/measurement system sensor data that is being displayed.